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INTRODUCTORY SESSION: RECENT DEVELOPMENTS IN CORPORATE GOVERNANCE

THE CORPORATE GOVERNANCE BEHAVIOR AND MARKET VALUE OF RUSSIAN FIRMS

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Abstract[1]

I examine the relationship between corporate governance behavior and market value for a sample of 21 Russian firms. I use (1) fall 1999 corporate governance rankings for these firms, developed by a Russian investment bank, and (2) the "value ratio" of actual market capitalization to potential Western market capitalization for these firms, determined independently by a second Russian investment bank. The correlation between ln(value ratio) and governance ranking is striking and statistically strong: *Pearson r = 0.90 (t = 8.97)*. A worst (51 ranking) to best (7 ranking) governance improvement predicts a 700-fold increase in firm value. These results are tentative because of the small sample. But they suggest that corporate governance behavior has a powerful effect on market value in a country where legal and cultural constraints on corporate behavior are weak.

1. Introduction

How strongly does a firm's corporate governance behavior affect the market value of its shares? Intuitively, governance behavior should matter. But evidence that the governance behavior of United States firms affects their market value is scarce. Most tests of whether variations in corporate governance behavior between U.S. firms affect firm value find either no effect or an economically small effect. And yet, perhaps the weak results are found largely because the variation in U.S. firm behavior is small. After all, the minimum quality of American corporate governance, set by law and by norms so widely accepted that almost no public firms depart from them, is quite high.

To conduct a stronger test of whether governance behavior affects firm value, I study Russian firms. Russia has weak laws governing behavior by firms and insiders (managers and large shareholders), weak norms for insider conduct, and weak reputational constraints on insider conduct (Black, Kraakman and Tarassova, 2000). Governance differences between firms are much larger than in the United States, and could have measurable effects on firm value.

This article tests the proposition that firms' corporate governance behavior affects their market value using September 1999 data for a sample of 21 Russian firms. I use corporate governance rankings for these firms, developed by Brunswick Warburg, a Russian investment bank. These estimates were not directly, and their creators believe that they were not indirectly, influenced by the firms' market values. I combine these governance rankings with data on the actual market capitalization of these firms, and estimates by Troika Dialog, a second Russian investment bank, of these firms' potential Western market capitalization. The potential Western capitalization values are based on asset multiples; there is no obvious way for governance behavior to affect these estimates.

[1] The views expressed in this paper are those of the author and do not necessarily represent the opinions of the OECD or its member countries. This paper is subject to further revision.

The "value ratio" of actual to potential Western market capitalization offers a measure of the discounts that outside investors apply to these firms' shares. The variation in discounts is huge. The value ratios vary from .48 for Vimpelcom to .0001 for Yuganskneftegaz.

The correlation between these firms' value ratios and their corporate governance rankings offers a measure of how strongly Russian firms' corporate governance behavior affects their market value. The correlation is striking. The Pearson product-moment correlation coefficient between ln(value ratio) and governance ranking is $r = 0.90$, with a t-statistic of 8.97 ($p < .0001$). These results survive various robustness checks.

My results are tentative because of the small sample. Still, they suggest that the governance behavior of Russian firms has a powerful effect on market value. A one-standard deviation change in governance ranking predicts a seven-fold increase in firm value. A worst (51 ranking) to best (7 ranking) change in governance ranking predicts a 700-fold increase in firm value.

Section 2 of this article briefly reviews research in the U.S. on the extent to which corporate governance attributes affect firm value, and why larger effects might be expected in Russia. Section 3 describes my research design. Section 4 present results. Section 5 discusses possible extensions of this research, and some implications for firm conduct.

2. Does corporate governance behavior affect firm value?

2.1. Evidence from the United States

In the United States, efforts to find a correlation between a firm's governance attributes and its market value mostly show weak or no results. For example, the proportion of independent directors on a company's board (or whether the company has a majority-independent board) has no statistically significant effect on performance (see surveys by Bhagat and Black, 1999; Weisbach and Hermalin, 2000). Similarly, neither overt activism by institutional investors (see surveys by Black, 1998; Karpoff, 1998), nor insider share ownership (for example, Demsetz and Lehn, 1985, and Morck, Shleifer and Vishny, 1988), nor ownership by outside blockholders (Bhagat, Black and Blair, 1998), nor a firm's committee structure (Klein, 1998), has a consistent effect on firm value.

Some corporate governance actions affect a firm's market value, but the effect is usually economically small – perhaps 1-2%. Effects of this size are found, for example, from a staggered board (Daines, 2000), eliminating cumulative voting (Bhagat and Brickley, 1984), other antitakeover provisions (for example, Bhagat and Jefferis, 1991; Daines and Klausner, in press), or incorporation in Delaware (Daines, in press).

2.2. Corporate governance behavior should matter more in Russia

The weak correlation between the corporate governance practices of U.S. firms and market value or performance could mean that firms' corporate governance behavior has only a small effect on their value, compared to industry environment, macroeconomic factors, management skill, and other factors. But the weak correlation could also reflect the restricted domain of the data. In the United States, the minimum quality of corporate governance, set by securities law, corporate law, stock exchange rules, and behavioral norms so widely accepted that almost no public firms depart from them, is quite high. The variation is small, perhaps too small for performance differences to emerge from the large amount of "noise" (other factors that affect firm performance) that afflicts empirical studies in this area.

A country with weaker rules and norms offers more scope for interfirm variation, and thus the potential for stronger results. Russia offers a good test case. It's corporate and securities laws are decent but unenforced and widely ignored. For example, Russian firms have been required since 1994 to use an independent registrar to record share transfers, yet only 8 of the 21 firms in my sample did so in the fall of 1999. Self-dealing and often outright looting are the norm, not the exception. And insiders didn't need to develop reputations for honesty to sell shares to the public. Instead, major companies were sold through privatization auctions, which let even disreputable insiders acquire control, in the privatization auctions or thereafter (Lieberman & Veimetra, 1996). Put these factors together, and Russia ranked last in a recent survey of corporate governance practices in 25 emerging markets (Karmin, 2000).

The low quality of Russian governance practices leaves huge room for inter-firm variation. Some insiders will loot their firms; others will try to attract investors through good conduct; still others will behave somewhere between these extremes (Fenkner and Krasnitskaya, 1999). Investors place heavy weight on differences in the governance behavior of Russian firms in deciding which firm's shares to buy and how much to pay. Qualitative evidence for investor concern includes:

1. frequent reports on corporate governance issued by Russian investment banks, including the rankings and other reports discussed here, and the weekly *Corporate Governance Bulletin* issued by the Troika Dialog investment bank, which discusses governance issues affecting particular Russian firms; and

2. the announcement by Standard & Poor's that it is developing its own corporate governance rankings of Russian firms (Standard & Poor's, 2000.

This article can be understood as an effort to see whether that qualitative insight will translate into quantitative data that supports the proposition that corporate governance behavior matters in Russia.

3. Research design

My goal is to test whether inter-firm variation in corporate governance behavior has a significant effect on market value in Russia -- and by inference, in other countries with weak corporate governance laws and norms. To do so, I rely on two data sets, generated independently by two prominent Russian investment banks.

3.1. Data on Russian corporate governance

The first data set is fall 1999 corporate governance rankings of 21 major Russian firms. The ranking system was developed by the Brunswick Warburg investment bank (Rutherford and Costello, 1999). Brunswick Warburg rated Russian companies on a 0 to 60 scale, with *higher* numbers indicating *worse* governance. [2]

Table 1 lists the risk elements that influence the rankings, and the weight given to each risk element. Appendix A provides details on the risk elements that enter each firm's overall ranking. Some of the risk elements are *rule-like* (for example, does the firm's charter provide preemptive rights). Others are mostly *behavioral* (for example, does the firm work with trading companies). Still others reflect governance *characteristics* (for example, does the firm have minority shareholder representatives on its board of directors). Finally, a few characteristics are not usually associated with corporate governance in

[2] Of these firms, 16 were ranked in the original Brunswick Warburg report. The authors of the report ranked the other five firms in early 2001 at my request. These additional firms were valued in 1999 by Troika Dialog. For several of these cases, Brunswick Warburg had access only to an early 2001 version of the company's charter, and could not verify whether the charter had been amended after September 1999.

developed countries (for example, does a firm have a high debt-equity ratio). I indicate in Table 1 my own judgment about which of these four groups each risk element falls into.

The firm rankings are shown in Table 2. The highest ranking is 7 for Vimpelcom, which conducted an initial public offering in the United States, is listed on the New York Stock Exchange, and publishes financial statements using U.S. Generally Accepted Accounting Principles (GAAP). The lowest rankings are 51 for three subsidiaries of Yukos: Yuganskneftegaz, Samaraneftegaz, and Tomskneft. During 1999, Yukos's controlling shareholder, Mikhail Khodorkovski, was trying to transfer virtually all value from these subsidiaries (and perhaps from Yukos itself) to shady offshore companies.[3]

Table 1: Elements of Corporate Governance Risk

Corporate governance risk factors and maximum weight for each factor, for corporate governance rankings developed by the Brunswick Warburg investment bank (Rutherford and Costello, 1999).

Risk Categories and Risk Factors	**Maximum Weight**	**Nature of Risk Factor**
Disclosure and Transparency	14	
no current US GAAP or IAS financials	6	governance characteristic
poor reputation for openness	4	behavior
no ADR program	2	governance characteristic
poor shareholder meeting notice	2	behavior
Dilution Through Share Issuance	10	
authorized but unissued shares	5	rule
no portfolio investor blocking stake	3	governance characteristic
no preemptive rights in charter	2	rule
Asset Stripping and Transfer Pricing	10	
controlling shareholder (private = 5; gov't = 3)	5	governance characteristic
works with trading companies	5	behavior
Dilution Through Merger and Restructuring	10	
merger planned or possible	5	behavior
restructuring planned or possible	5	behavior
Bankruptcy	5	
overdue accounts payable or tax arrears	3	non-governance characteristic
high overall debt	2	non-governance characteristic
Limits on Foreign Ownership	5	
restricts foreign ownership or voting	3	rule
restricts foreign board membership[4]	2	rule
Management Attitude Toward Shareholders	5	
poor corporate governance record	3	behavior
no minority shareholder representatives on board	2	governance characteristic
Registrar Affiliated w. Company	1	governance characteristic
Total	**60**	

3.1.1. Potential bias in regression results

[3] For details on this scandal, see Black, Kraakman & Tarassova (2000), pp. 1769-1772.

[4] This risk element does not affect my empirical results because none of the sample firms restricted foreign membership on the board of directors.

None of the ranking elements directly involves a firm's market value. Most elements rely primarily on objective factors. For example the 'dilution through share issuance' risk factor uses as subfactors the existence of authorized but unissued shares, the existence of preemptive rights, and minority investors holding a blocking stake (a stake large enough to defeat a charter amendment that would authorize additional shares). The Brunswick Warburg report gives no hint that firms' market values entered the governance rankings indirectly, through the choice or weighting of the corporate governance risk factors. To further exclude the possibility that market values influenced the rankings, I contacted Andrea Rutherford, the report's principal author. She confirmed that:

> We did not use [market] valuations in any of our corporate governance 'scorings.' I have thought about each item and am sure that valuations could not have 'crept' in indirectly either.

3.2. Ratio of actual to potential market capitalization

The second data set consists of *value ratios* for these firms in September 1999 (matching the date of the corporate governance rankings). The value ratio is computed as the ratio of (i) actual market capitalization, based on trading prices in the Russian stock market, to (ii) potential Western market capitalization, if the firm were operated and valued in an efficient Western market. Actual market capitalization is based on trading prices, which are prices paid for minority, noncontrolling shares. The private benefits of control in Russia are high, so for most firms, their economic value likely exceeds their market capitalization.

Potential Western market capitalization estimates were provided to me by James Fenkner, head of equity strategies at Troika Dialog, a second major Russian investment bank. Russian financial statements are often opaque and firms aren't run to maximize profit (at least unskimmed profit). Troika Dialog therefore based its estimates of potential Western market capitalization on multiples of assets, capacity, or (for telephone companies) sales, rather than multiples of cash flow or profit. Table 2 shows these firms' actual market capitalization, their potential Western market capitalization, and the basis for computing each firm's potential market capitalization.

An eyeball examination of Table 2 shows the strong correlation between value ratio and governance ranking that I document in Part 4 of this article. Oil and gas companies dominate the bottom of both the value ratio and corporate governance rankings. There is huge potential value in Russian companies, but outside shareholders expect to receive very little of that value. A country with potential market capitalization of around $3 trillion (including other companies not included in my sample) has an actual market capitalization of under $30 billion.

The minority shares in many Russian companies must be considered as out-of-the-money options. Investors' central expectation is to get zero or nearly zero value for their shares, but there is a small chance of a large payoff if Russia succeeds economically and the firm's treatment of minority shareholders improves.

3.2.1. Potential bias in regression results

The actual market capitalization of these firms is based on actual trades. The potential Western market capitalization is constructed by Troika Dialog based on objective estimates of the Russian firms' reserves, capacity, or revenue. Troika Dialog determines what multiples of reserves, capacity, or revenue to use by looking at Western firms, not Russian firms. Moreover, Troika Dialog did not know the sample firms' governance rankings, or the basis for the governance rankings, when it created the potential Western market capitalization values. For most of the sample firms, Troika Dialog created the potential Western market capitalization values, at my request, for an entirely separate project--an earlier article on

what went wrong with Russian privatization.[5] For all these reasons, I do not see how the sample firms' corporate governance attributes could affect Troika Dialog's estimate of their potential Western market capitalization.

Table 2
Governance Rankings and Potential Value for Selected Russian Companies
(at September 1999; dollars in $ billions)

Governance rankings (from Brunswick Warburg), actual market capitalization, and potential Western market capitalization estimates (from Troika Dialog) for selected major Russian companies. Potential Western market capitalization is based on Troika Dialog's estimates of Western multiples of assets, capacity, or revenue: $13 / barrel of oil reserves (or gas equivalent) for oil and gas companies; $795,000 / megawatt of generating capacity for electric companies; $148 / ton of capacity for steel companies; 4.3 x sales for telephone companies; 3.1 x book value of assets for Sberbank; $16.5 million / plane for Aeroflot; .085 x value of reserves at then current commodity prices for Norilski Nickel; $4,620 / vehicle produced for GAZ; and $0.97 / liter of capacity for Sun Interbrew. Firms are listed in decreasing order of value ratio.

Company	Industry	Market Capitalization		Value Ratio (Actual/Potential Market Cap.)	Governance Ranking
		Actual	Potential Western		
Vimpelcom	telephone	0.58	1.2	.48	7
Rostelecom	telephone	0.9	5	.18	15
GAZ	truck mfg.	0.11	0.7	.16	17
Sun Interbrew	alcohol mfg.	0.11	1.5	.073	16
Mosenergo	electricity	0.8	12	.067	15
Surgutneftegaz	oil	4.4	91	.048	26
Norilski Nickel	nickel mining	0.5	9	.056	27
Severstal	steel	0.08	1.7	.047	21
Aeroflot	airline	0.09	2.0	.045	23
Irkutskenergo	electricity	0.4	10	.040	10
LukOil	oil	5.5	195	.028	20
UES	electricity	3.1	110	.028	24
Tatneft	oil	0.4	75	.005	18
Magnitogorsk	steel	0.04	1.8	.022	29
Sibneft	oil	1.1	60	.018	25
Sberbank	banking	0.4	60	.007	35
Gazprom	natural gas	4	1960	.002	38
Yukos	oil	0.3	170	.0018	38
Tomskneft	oil	0.039	24	.0016	51
Samaraneftegaz	oil	0.003	18	.0002	51
Yuganskneftegaz	oil	0.014	110	.0001	51
Total		**22.9**	**2,918**	**mean = .06**	**mean = 27**

[5] See Black, Kraakman & Tarassova (2000), Table II.

3.3. Sample statistics

Table 3 presents simple sample statistics on the value ratio, a logarithmic transformation of the value ratio, and the governance ranking. I use a logarithmic transformation of the value ratio to test the correlation between governance and firm value for two reasons. First, the raw value ratio is restricted to the [0, 1] interval, and thus does not to satisfy the normality assumptions that underlie regression analysis. Second, the raw value ratio gives little weight to differences in relative values at the low end of the value range. For example, the 100-fold difference in value between value ratios of .0001 and .01 counts about the same as the two-fold difference between .01 and .02.

Table 3: Summary Statistics

Variable	Mean	Std. Deviation	No. of Observations
Value Ratio	.06	.11	21
Ln(Value Ratio)	-4.1	2.2	21
Governance Ranking	27	13	21

3.4. Endogeneity

A problem that affects many studies of the relationship between corporate governance attributes and firm value or performance is the potential endogeneity of the governance attribute. If different firms are optimally governed differently, and all firms adopt efficient governance structures, then there will be no direct correlation between the governance attribute and measures of firm value or performance.

In Russia, there is reason to believe that endogeneity is less of a concern than in the United States and other developed countries. First, the firms in my sample have been private enterprises for less than a decade, during a period of massive economic change in Russia. Thus, even if firms tend to develop efficient governance structures over time, this relaxation to equilibrium may not have had time to occur in Russia. Second, the controllers of many Russian firms choose, perhaps rationally, to extract large private benefits rather than maximize their firm's market value. Bad governance practices may be privately optimal for them, even if adverse to outside investors.

These arguments don't mean that endogeneity is not be a problem for my sample. They do suggest that endogeneity is likely to be a smaller problem than in a more developed, more stable country.

4. Results

4.1. Basic regression results

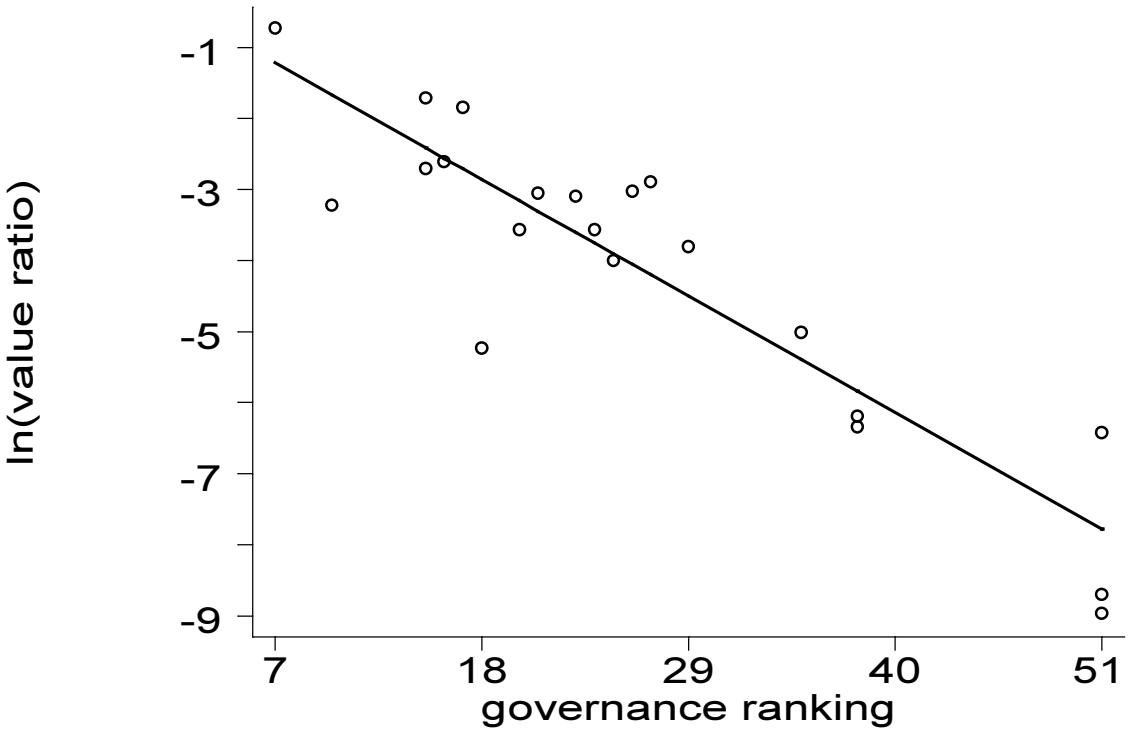
I test the hypothesis that high governance ranking (low governance quality) correlates negatively with firm value. I run a simple regression (equivalent to computing the Pearson product-moment correlation coefficient *r*) of ln(value ratio) as dependent variable, on governance ranking as independent variable. The regression equation and related statistics are shown in Table 4. Figure 1 shows the raw data and the fitted regression line.

Table 4
Regression: Ln(Value Ratio) on Governance Ranking

ln (value ratio) = -.176 + (-.149) • (governance ranking)
(t = -8.97) (p < .0001))[6]

F (1, 19) = 80.39
Pearson r = -.899 (R^2 = .809; *adj.* R^2 = .799)

Figure 1
Regression: Ln(Value Ratio) on Governance Ranking



(high ranking implies worse governance)

These results are surprisingly strong, given the crude nature of the governance rankings and the many factors that can affect firm value. My results are tentative because of the small sample. But they suggest that the corporate governance behavior of Russian firms, as captured by the governance ranking, is the dominant determinant of the value ratio, with a Pearson correlation coefficient of r = -0.90 (R^2 = 0.81). Statistical significance is very high (t = -8.97) despite the small sample size.

These results are economically powerful. Converting the regression equation to exponential form, it becomes:

$$\text{value ratio} = 0.84 \bullet e^{(-.149) \bullet (\text{governance ranking})}$$

[6] Significance levels reported in this article are for two-tail tests.

A one standard deviation (roughly 13 point) improvement in governance ranking predicts an increase in firm value by a factor of $e^{(-.149)\cdot(-13.09)} = 7.03$. A worst (ranking of 51) to best (ranking of 7) improvement in governance predicts an increase in firm value by a factor of $e^{(-.149)\cdot(-44)} = 703$.

Other (unobserved) factors affect the value ratio as well. The mean distance of the actual ln(value ratio) from the fitted regression line is about 0.74. Thus, the actual value ratio differs from the estimated ratio, on average, by a factor of $e^{.74} = 2.1$. The maximum difference between actual and predicted value ratio is a factor of 10.8. However, the value effects of these unobserved factors, although economically large, pale compared to the value effect of the governance ranking.

4.2. Robustness checks

4.2.1. Normality tests

Least squares regression assumes that the dependent and independent variables are normally distributed. For both variables, skewness and kurtosis levels are reasonable, and standard tests for normality cannot reject the hypothesis that both variables are normally distributed. For example, the Shapiro-Wilk *W* test for normality produces insignificant *z* statistics for both variables:[7]

ln(value ratio): $W = 0.92$ $z = 1.31$ ($p = .08$)
skewness = .67; kurtosis = 2.50

governance ranking: $W = 0.95$ $z = 0.40$ ($p = .35$)
skewness = -.82; kurtosis = 3.00

4.2.2. Alternative measures of correlation

I also run two alternative specifications of the correlation coefficient that are less sensitive to whether the variables are normally distributed. The Pearson correlation coefficient *r* uses information about the distance of each data point from the mean for each variable. In contrast, the Spearman rank-order correlation coefficient rho uses information only about the relative ranks of the data points. Thus, the Spearman coefficient is invariant to the logarithmic transformation of the value ratio (or a similar transformation of the governance ranking). The results are again strong:[8]

Spearman rho = -0.82 $t = -6.15$ ($p < .0001$)

Second, I compute the Kendall □-b correlation coefficient, which relies on differences in rank order, and is less dependent than either Pearson or Spearman on the distribution of the variables, again with strong results:

Kendall □-b = -0.66
Kendall score = -137 (standard error = 33.0)
$z = 137/(33.0) = 4.15$ ($p < .0001$)

[7] The D'Agostino-Royston test for normality, which combines skewness and kurtosis measures into an adjusted Π^2, also fails to reject the hypothesis of normal distribution for both variables. The computed values are $\Pi^2 = 3.82$ ($p = .15$) for ln(value ratio) and $\Pi^2 = 2.45$ ($p = .29$) for governance ranking.

[8] As a further robustness check, I rerun the regression in Table 4 using a logarithmic transformation of both the value ratio and the governance ranking. The Pearson correlation coefficient remains strong at $r = -0.84$ ($t = -6.67$).

4.2.3. Alternative treatment of Yukos subsidiaries

Three of the 21 firms in my sample are publicly traded subsidiaries of Yukos, an oil holding company. I treat these three firms as separate because, although they share a similar corporate governance ranking, their value ratios range from .0001 (for Samaraneftegaz) to .0016 (for Tomskneft), suggesting that investors value them differently.

One could instead treat these three subsidiaries as a single firm, with a value ratio equal to the mean for the three firms. The results are shown in Table 5. The *t*-statistic drops, as expected because of the smaller sample size, but remains very strong at t = -7.45. The regression coefficient changes only slightly, from -.149 to -.151.

Table 5

Treat Yukos Subsidiaries as Single Firm

Treatment of Yukos subsidiaries	**Regression coefficient**	**Pearson *r***	**Sample size**
Basic analysis in Table 4: treat subsidiaries as separate firms	-.149 (t = -8.97)	-.899	21
treat as single firm with value ratio = average for the three firms	-.151 (t = -7.45)	-.875	19

4.2.4. Possible control variables

A further robustness check would be to add additional control variables to the regression. One obvious choice is industry controls. This approach is problematic for two reasons. First, given the small sample size, one can quickly run out of degrees of freedom. Only oil (eight firms) or oil and gas combined (nine firms) have enough firms represented in the sample to make an industry control feasible.

A second reason for not using an industry control is that industry may proxy for governance risk. Commodity export industries, of which oil is one, are subject to high transfer pricing risk. The commodity can be sold to a middleman controlled by the insiders at a below-market price, and then resold at market price. These transfer pricing schemes are a favorite way for Russian managers to pocket profits and avoid taxes. Thus, oil and gas companies may attract bad managers, who welcome the opportunity to steal the company's wealth.

Other potential control variables have similar problems. For example, the percentage stake held by the controlling shareholder affects the controlling shareholder's ability and incentive to self-deal. Thus, this variable wouldn't be a good control variable, even if share ownership data were available. Insider holdings ought instead to affect a firm's governance risk, and indeed are one element of Brunswick Warburg's governance rankings.

Having said this, rerunning my basic regression with an oil-and-gas dummy variable is a natural robustness check. Table 6 shows the results for two regressions: (1) with an oil and gas dummy variable; and (2) with dummy variables both for oil and gas and for non-oil commodity industries (in my sample, two steel firms plus Norilski Nickel).

The oil and gas dummy takes the expected negative coefficient. It is statistically significant when used alone, but not when combined with the non-oil commodity dummy. The basic result remains. Governance ranking takes a large negative coefficient and is highly significant.

Table 6
Regression: Ln(Value Ratio) on Governance Ranking with Industry Dummies

Regression (6.1) (with oil and gas dummy variable):
ln (value ratio) = -.370 + (-.125) • (governance ranking) (t = -6.56)
+ (-1.049) • (oil/gas dummy) (t = -2.14)
F (2, 18) = 50.00 (R^2 = .848; *adj.* R^2 = .830)

Regression (6.2) (with oil and gas and non-oil commodity dummy variables):
ln (value ratio) = -.412 + (-.128) • (governance ranking) (t = -6.45)
+ (-.879) • (oil/gas dummy) (t = -1.60)
+ (.459) • (non-oil commodity dummy) (t = 0.73)
F (3, 17) = 32.66 (R^2 = .852; *adj.* R^2 = .826)

4.3. Which elements of governance behavior matter most?

4.3.1. Disclosure risk versus self-dealing risk

A final step in analyzing this data set is to see, within the constraints set by sample size, which risk factors are most important in explaining the overall correlation. One can crudely divide the risk factors into:

(i) disclosure risk (each firm's disclosure/nontransparency subranking);

(ii) self-dealing risk (the sum of each firm's subrankings for dilution through share issuance, asset stripping and transfer pricing, dilution through merger or restructuring, and bankruptcy); and

(iii) 'other risk' (the sum of each firm's subrankings for limits on foreign ownership, management attitude toward shareholders, and registrar risk).

An initial hypothesis, from prior theoretical work (Coffee 1999a; Coffee 1999b; Black, in press), is that both disclosure and self-dealing risk should separately predict the value ratio. Table 7 shows the regression results. Only self-dealing risk is statistically significant, although all three variables have the expected negative coefficient.

The inference is that self-dealing affects value much more than a firm's disclosure practices. In separate regressions (not shown), I confirm that none of the four risk elements that comprise the disclosure risk factor is individually significant, in a regression that also includes self-dealing risk as an independent variable. The risk element for absence of ADRs (American Depository Receipts) takes an unexpected positive sign, perhaps because most sample firms have unsponsored ADRs, which impose no reporting requirements on the firm. Disclosure risk remains insignificant if computed as the sum of the three disclosure risk elements that individually have negative coefficients. I also confirm that none of the four risk elements that enter "other risk" are individually significant.

These results suggest that disclosure alone is of limited value in an environment where company insiders can freely loot the value of minority shares, even in the face of reasonably full disclosure and ample press coverage. The subsidiaries of Yukos offer an example. They have the lowest value ratios and lowest governance rankings in my sample. These firms' approximate reserves are reasonably known. The looting of Yukos and its subsidiaries by its controlling shareholder, Mikhail Khodorkovski, was widely reported in the Russian and Western press. Khodorkovski proceeded nonetheless.

Table 7
Regression: Ln(Value Ratio) on Subcategories of Governance Risk

ln (value ratio) = -.124 + (-.211) • (self-dealing risk) (t = -6.19)
+ (-.054) • (disclosure risk) (t = -0.91)
+ (-.069) • (other risk) (t = -.52)
F (3, 17) = 28.67 (R^2 = .835; *adj.* R^2 = .806)

A warning: Many accounting studies look at the impact of disclosure quality on market value or other firm attributes, without controlling for self-dealing risk. This is understandable because self-dealing risk is hard to measure. But it can lead to misleading inferences. For my sample, a regression that includes disclosure risk as the only independent variable produces a large, statistically significant negative coefficient:

ln (value ratio) = -2.22 + (-.286) • (disclosure risk) (t = -3.96)

The multivariable regression in Table 7 shows that this correlation arises primarily because disclosure risk is correlated with self-dealing risk (r = .63).[9]

4.3.2. Self-dealing risk subfactors

A further step is to investigate which self-dealing risk factors appear to be most important. I first divide self-dealing risk into the four subrankings used by Brunswick Warburg. These are for:

- share issuance risk
- asset stripping and transfer pricing risk
- merger and restructuring risk
- bankruptcy risk

Table 8 shows regression results using separate independent variables for each of these sources of self-dealing risk.[10]

[9] This correlation is not high enough to create serious concerns about the reliability of the coefficient on self-dealing risk in Table 7. Consistent with this, a regression of self-dealing risk (as dependent variable) on disclosure risk and other risk (as independent variables) has a moderate R^2 = .45.

[10] In the regressions reported in this section, I generally omit control variables that are themselves insignificant. For example, in Table 8, I do not use disclosure risk and other risk as control variables. Including these variables reduces degrees of freedom for my small sample. Including them would reduce Type I risk (finding a significant effect when no effect exists) but the loss of degrees of freedom would increase Type II risk (finding insignificance when an effect exists). In all cases, except as indicated in footnotes, coefficients are similar, t-statistics are similar but usually moderately smaller, and statistical inference remains the same, if I include these additional control variables.

Table 8
Regression: Ln(Value Ratio) on Subcategories of Self-Dealing Risk

ln (value ratio) =	.145		
+	(-.283) • (share issuance risk)		(t = -3.67)
+	(-.232) • (asset stripping and transfer pricing risk)		(t = -3.46)
+	(-.125) • (merger and restructuring risk)	(t = -1.68)	
+	(-.559) • (bankruptcy risk)		(t = -4.68)

F (4,16) = 28.56 (R^2 = .877; *adj.* R^2 = .846)

All four subcategories of self-dealing risk appear to be separately important. All but merger and restructuring risk are statistically significant, and merger and restructuring risk is close to statistical significance.[11]

I next assess, within each subfactor for self-dealing risk, which individual risk elements are statistically significant. For each subfactor, I run a regression using as independent variables the risk elements that comprise that subfactor and also a variable equal to the sum of the other three self-dealing subfactors. The results are shown in Table 9, with marginally significant risk elements in italics and significant risk elements in boldface.

[11] These coefficients and t-statistics are similar if I include disclosure risk and other risk as independent variables in the regression. They become: for share dilution risk, coeff. = -.255 (t = -3.11); for asset stripping and transfer pricing risk, coeff. = -.203 (t = -2.61); for merger and restructuring risk, coeff. = -.109 (t = -1.40); and for bankruptcy risk, coeff. = -.529 (t = -4.07)

Table 9
Regression: Ln(Value Ratio) on Individual Self-Dealing Risk Elements

Regression (9.1) (risk elements for share issuance risk):
ln (value ratio) = -.280 +(-.242) • (other self-dealing risk) (t = -5.86)
+ (-.139) • (authorized shares) (t = -1.43)
+ (-.248) • (blocking stake) (t = -1.40)
+ *(-.458) • (preemptive rights)* *(t = -2.09)*[12]
F (4, 16) = 20.01 (R^2 = .833; *adj.* R^2 = .792)

Regression (9.2) (risk elements for asset stripping/transfer pricing risk):
ln (value ratio) = -.775 + (-.230) • (other self-dealing risk) (t = -5.97)
+ (-.082) • (controlling shareholder)(t = -0.50)[13]
+ **(-.326) • (uses trading companies)** **(t = -2.46)**[14]
F (3, 17) = 26.38 (R^2 = .823; *adj.* R^2 = .792)

Regression (9.3) (risk elements for merger and restructuring risk):
ln (value ratio) = .072 + (-.286) • (other self-dealing risk) (t = -5.03)
+ (-.046) • (merger risk) (t = -0.44)
+ (-.254) • (restructuring risk) (t = -1.57)
F (3, 17) = 30.89 (R^2 = .845; *adj.* R^2 = .818)

Regression (9.4) (risk elements for bankruptcy risk):
ln (value ratio) = .013 + (-.223) • (other self-dealing risk) (t = -6.62)
+ **(-.415) • (slow payment/tax arrears)** **(t = -2.32)** [15]
+ **(-.738) • (high debt)** **(t = -2.83)**[16]
F (3, 17) = 38.68 (R^2 = .872; *adj.* R^2 = .850)

These results are highly tentative because of the small sample. They suggest that governance related behavior (working with trading companies, which suggests that insiders are siphoning off profits) can be important. They also suggest that attributes that suggest a possible bankruptcy filing can be important. These atributes are not typically associated with corporate governance in developed countries, but in Russia, a bankruptcy filing poses grave risk to minority shareholders. The results further suggest that the rules a firm embeds in its charter (preemptive rights) can be important. Finally, they suggest that self-dealing risk is multifaceted. Four of the nine risk elements in these four regressions are significant or marginally significant despite the small sample size, and three more have t-statistics of 1.4 or greater, suggesting that they could be significant in a larger sample.

[12] The coefficient increases slightly to -.492 and remains marginally significant (t = -2.12; p = .052) if I include independent variables for disclosure risk and other risk in the regression.

[13] I also get insignificant results if I treat a private controlling shareholder (5 points in the Brunswick Warburg rankings) and the government as controlling shareholder (3 points in the Brunswick Warburg rankings) as separate risk elements.

[14] The coefficient declines slightly to -.300 and the t-statistic becomes only marginally significant (t = -2.00; p = .06) if I include independent variables for disclosure risk and other risk in the regression.

[15] The coefficient declines slightly to -.376 and the t-statistic becomes only marginally significant (t = -1.96; p = .07) if I include independent variables for disclosure risk and other risk in the regression.

[16] The coefficient declines slightly to -.697 but remains statistically significant (t = -2.60), if I include independent variables for disclosure risk and other risk in the regression.

5. Policy implications and implications for future research

5.1. Policy implications

In developed countries, firm-level variation in corporate governance behavior has only a minor effect on market value. In Russia, in contrast, this article suggests that firm-level governance behavior has a huge effect on market value. What is true for Russia could well be true, perhaps to a lesser extent, in other governance-challenged countries.

This has the potential to be good news for firms in these countries. It suggests that firms can greatly improve their own share values, and thus reduce the cost of raising equity capital, through a determined effort to improve their corporate governance practices. It also suggests the potential value of minimum quality regulation, which can reduce the potential for adverse selection and thus enhance all firms' market values.

The evidence reported here on the correlation between corporate governance behavior and firm value in Russia also has practical significance for investors in Russian firms. The huge value differences reported here (a 700-fold difference in predicted value between the worst and best ranked firms in my sample) suggest that investors should devote major attention to developing measures of governance behavior and quantifying how governance behavior affects firm value.

5.2. Avenues for future research

Important extensions of this research are possible, in Russia and other countries. Within Russia, my sample was restricted to 21 firms. Rankings for a larger number of Russian firms, especially rankings from a different source, will provide an important robustness check. Time series research can confirm (or disconfirm) the implication that firms can improve their market values by improving their governance behavior.

Second, the Brunswick Warburg corporate governance rankings are the sum of 18 separate risk elements, which Brunswick Warburg combines into eight subrankings. A larger sample would permit more careful research on which risk factors most strongly influence firm value. Industry control variables could also become practical.

The methodology used here can also inform the cross-country comparisons of corporate governance pioneered by La Porta, Lopez-de-Silanes, Shleifer & Vishny.[17] An important issue in these studies is how to measure the strength of a country's capital markets. The measures employed include stock market capitalization as a percentage of gross domestic product, number of public companies per million inhabitants, and bid-asked spreads as a percentage of share price. The value ratio of actual to potential Western market capitalization, for a country's major companies, is harder to compute than these measures but offers a more direct measure of corporate governance quality. Thus, it could permit better tests of the importance of particular corporate governance practices (preemptive rights, cumulative voting, etc.).

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[17] See La Porta, Lopez-de-Silanes, Shleifer and Vishny (1997, 1998); La Porta, Lopez-de-Silanes and Shleifer (1999); Lopez-de-Silanes, Shleifer and Vishny (1999, 2000).

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Appendix A

This appendix provides details about the corporate governance rankings of the firms in my sample. It lists each firm's score on the 8 risk factors that enter into the overall ranking.

Appendix A

	Risk Categories								
Company	Disclosure /transpar-ency	Dilution through share issuance	Asset stripping and transfer pricing	Dilution through merger or restruc-turing	Bank ruptcy	Limits on foreign ownership	Managemen t attitude toward shareholders	Registrar risk	**Total**
Maximum Points	**14**	**10**	**10**	**10**	**5**	**5**	**5**	**1**	**60**
Vimpelcom	0	5	0	0	0	0	2	0	7
Irkutskenergo	0	2	3	0	2	0	2	1	10
Mosenergo	0	7	5	0	1	0	2	0	15
Rostelecom	0	3	5	5	0	0	1	1	15
Sun Interbrew	4	7	0	0	0	0	5	0	16
GAZ	8	0	8	0	1	0	0	0	17
Tatneft	1	2	8	0	5	0	1	1	18
LukOil	6	3	8	0	0	0	2	1	20
Severstal	4	5	9	0	0	0	2	1	21
Aeroflot	5	5	5	0	2	0	5	1	23
UES	6	5	3	3	4	3	0	0	24
Sibneft	2	8	10	3	0	0	2	0	25
Surgutneftegaz	8	3	5	5	0	0	4	1	26
Norilski Nickel	10	5	8	0	0	0	4	0	27
Magnitogorsk	13	3	7	0	2	0	4	0	29
Sberbank	13	10	3	0	2	3	3	1	35
Gazprom	10	3	10	3	5	3	3	1	38
Yukos	8	8	10	5	1	0	5	1	38
Tomskneft	14	10	10	10	3	0	3	1	51
Samaraneftegaz	14	10	10	10	3	0	3	1	51
Yugansknefteg az	14	10	10	10	3	0	3	1	51

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